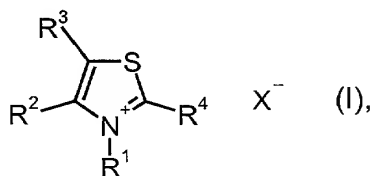


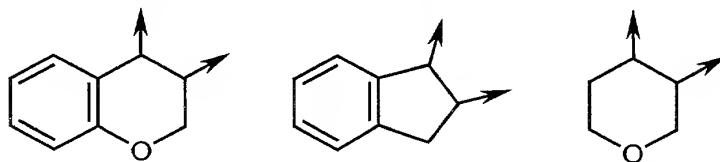
WHAT IS CLAIMED IS:

1. A compound of the formula (I)



in which

- 5 R<sup>1</sup> represents methyl, ethyl, n-propyl, isopropyl, hydroxyl, methylsulfonyl, ethylsulfonyl, phenylsulfonyl, p-methylphenylsulfonyl, or benzyl that is optionally substituted by halogen, nitro, C<sub>1</sub>-C<sub>4</sub>-alkyl, or C<sub>1</sub>-C<sub>4</sub>-alkoxy,
- 10 R<sup>2</sup> represents C<sub>1</sub>-C<sub>4</sub>-alkyl, hydroxyl, methylsulfonyl, ethylsulfonyl, phenylsulfonyl, p-methylphenylsulfonyl, phenyl that is optionally substituted by halogen, NO<sub>2</sub>, C<sub>1</sub>-C<sub>4</sub>-alkyl, C<sub>1</sub>-C<sub>4</sub>-halogenoalkyl, C<sub>1</sub>-C<sub>4</sub>-alkylsulfonyl, C<sub>1</sub>-C<sub>4</sub>-alkoxy, C<sub>1</sub>-C<sub>4</sub>-halogenoalkoxy, C<sub>1</sub>-C<sub>4</sub>-alkoxycarbonyl, C<sub>1</sub>-C<sub>4</sub>-halogenoalkoxycarbonyl, C<sub>1</sub>-C<sub>4</sub>-alkylcarbonyloxy, or C<sub>1</sub>-C<sub>4</sub>-halogenoalkylcarbonyloxy, benzyl that is
- 15 optionally substituted by halogen, nitro, C<sub>1</sub>-C<sub>4</sub>-alkyl, or C<sub>1</sub>-C<sub>4</sub>-alkoxy, or pyrrolyl, thienyl, naphthyl, or benzothiophenyl, each of which is optionally substituted by halogen, C<sub>1</sub>-C<sub>4</sub>-alkyl, or C<sub>1</sub>-C<sub>4</sub>-halogenoalkyl,
- 20 R<sup>3</sup> represents hydrogen, methyl, or ethyl, or R<sup>2</sup> and R<sup>3</sup> together represent -(CH<sub>2</sub>)<sub>n</sub>- that is optionally substituted by halogen, NO<sub>2</sub>, carboxyl, carbonyl, C<sub>1</sub>-C<sub>4</sub>-alkyl, C<sub>1</sub>-C<sub>4</sub>-halogenoalkyl, C<sub>1</sub>-C<sub>4</sub>-alkoxy, or C<sub>1</sub>-C<sub>4</sub>-halogenoalkoxy or the optionally halogen-, NO<sub>2</sub>-, C<sub>1</sub>-C<sub>4</sub>-alkyl-, C<sub>1</sub>-C<sub>4</sub>-halogenoalkyl-, C<sub>1</sub>-C<sub>4</sub>-alkoxy-, or C<sub>1</sub>-C<sub>4</sub>-halogenoalkoxy-substituted groups having the formulas



where the arrows mark the points of linkage to the thiazole ring, and

n represents 3, 4 or 5,

R<sup>4</sup> represents bromine or chlorine, and

X<sup>-</sup> represents chloride, bromide, iodide, hydrogen sulfate, ½ equivalent of sulfate, sulfite, hexachloroantimonate, methanesulfonate, trifluoromethanesulfonate, p-toluenesulfonate, tetrafluoroborate, tetraphenylborate, or hexafluorophosphate,

excluding the compounds 2-bromo-3-ethyl-4-methylthiazolium tetrafluoroborate and 2-bromo-3-ethyl-4-methylthiazolium hexachloroantimonate, 2-chloro-3-ethyl-4-methylthiazolium tetrafluoroborate and 2-chloro-3-ethyl-4-methylthiazolium hexachloroantimonate, 2-bromo-3-methyl-4-phenylthiazolium tetrafluoroborate, 2-chloro-3-ethyl-4,5-dimethylthiazolium tetrafluoroborate, and 2-chloro-3,4-dimethylthiazolium tetrafluoroborate.

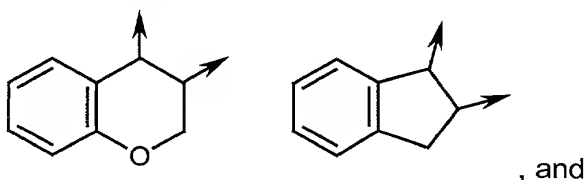
2. A compound of the formula (I) according to Claim 1 wherein

R<sup>1</sup> represents methyl, ethyl, n-propyl, hydroxyl, methylsulfonyl, ethylsulfonyl, or benzyl that is optionally substituted by fluorine and/or chlorine, methyl, ethyl, n- or i-propyl, trifluoromethyl, methoxy, ethoxy, or n- or i-propoxy,

R<sup>2</sup> represents methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, or benzyl or phenyl that is optionally substituted by fluorine and/or chlorine, methyl, ethyl, n- or i-propyl, methoxy, ethoxy, or n- or i-propoxy,

R<sup>3</sup> represents hydrogen or methyl, or

R<sup>2</sup> and R<sup>3</sup> together represent -(CH<sub>2</sub>)<sub>n</sub>- substituted by fluorine and/or chlorine, methyl, ethyl, trifluoromethyl, methoxy, ethoxy, or carbonyl or the groups having the formulas



, and

n represents 3 or 4,

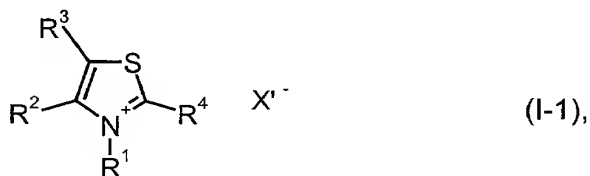
R<sup>4</sup> represents bromine, and

X<sup>-</sup> represents bromide, ½ equivalent of sulfate, sulfate, SbCl<sub>6</sub><sup>-</sup>, mesylate, triflate, tosylate, tetrafluoroborate, tetraphenylborate, or hexafluorophosphate.

3. A compound of the formula (I) according to Claim 1 wherein
- 5 R<sup>1</sup> represents methyl, ethyl, methylsulfonyl, ethylsulfonyl, or benzyl that is optionally substituted by fluorine and/or chlorine,
- R<sup>2</sup> represents methyl, ethyl, n-propyl, n-butyl, or phenyl that is optionally substituted by fluorine and/or chlorine, methyl, or ethyl,
- R<sup>3</sup> represents hydrogen, or
- 10 R<sup>2</sup> and R<sup>3</sup> together represent -(CH<sub>2</sub>)<sub>n</sub>- that is optionally substituted by fluorine and/or chlorine, methyl, ethyl, or carbonyl, and
- X<sup>-</sup> represents bromide, ½ equivalent of sulfate, sulfate, or tetrafluoroborate.

4. A compound of the formula (I) according to Claim 1 wherein
- 15 R<sup>1</sup> represents methyl, ethyl, n-propyl, or isopropyl,
- R<sup>2</sup> represents methyl or ethyl, and
- X<sup>-</sup> represents tetrafluoroborate.

5. A compound of the formula (I) according to Claim 1 wherein
- R<sup>4</sup> represents bromine.
- 20 6. A process for the preparation of compounds of formula (I-1)



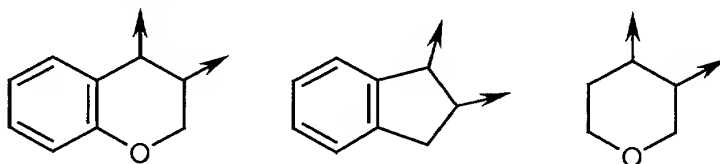
in which

- R<sup>1</sup> represents methyl, ethyl, n-propyl, isopropyl, hydroxyl, methylsulfonyl, ethylsulfonyl, phenylsulfonyl, p-methylphenylsulfonyl, or
- 25 benzyl that is optionally substituted by halogen, nitro, C<sub>1</sub>-C<sub>4</sub>-alkyl, or C<sub>1</sub>-C<sub>4</sub>-alkoxy,
- R<sup>2</sup> represents C<sub>1</sub>-C<sub>4</sub>-alkyl, hydroxyl, methylsulfonyl, ethylsulfonyl, phenylsulfonyl, p-methylphenylsulfonyl, phenyl that is optionally

substituted by halogen, NO<sub>2</sub>, C<sub>1</sub>-C<sub>4</sub>-alkyl, C<sub>1</sub>-C<sub>4</sub>-halogenoalkyl, C<sub>1</sub>-C<sub>4</sub>-alkylsulfonyl, C<sub>1</sub>-C<sub>4</sub>-alkoxy, C<sub>1</sub>-C<sub>4</sub>-halogenoalkoxy, C<sub>1</sub>-C<sub>4</sub>-alkoxycarbonyl, C<sub>1</sub>-C<sub>4</sub>-halogenoalkoxycarbonyl, C<sub>1</sub>-C<sub>4</sub>-alkyl-carbonyloxy, or C<sub>1</sub>-C<sub>4</sub>-halogenoalkylcarbonyloxy, benzyl that is optionally substituted by halogen, nitro, C<sub>1</sub>-C<sub>4</sub>-alkyl, or C<sub>1</sub>-C<sub>4</sub>-alkoxy, or pyrrolyl, thienyl, naphthyl, or benzothiophenyl, each of which is optionally substituted by halogen, C<sub>1</sub>-C<sub>4</sub>-alkyl, or C<sub>1</sub>-C<sub>4</sub>-halogeno-alkyl,

R<sup>3</sup> represents hydrogen, methyl, or ethyl, or

R<sup>2</sup> and R<sup>3</sup> together represent -(CH<sub>2</sub>)<sub>n</sub>- that is optionally substituted by halogen, NO<sub>2</sub>, carboxyl, carbonyl, C<sub>1</sub>-C<sub>4</sub>-alkyl, C<sub>1</sub>-C<sub>4</sub>-halogenoalkyl, C<sub>1</sub>-C<sub>4</sub>-alkoxy, or C<sub>1</sub>-C<sub>4</sub>-halogenoalkoxy or the optionally halogen-, NO<sub>2</sub>-, C<sub>1</sub>-C<sub>4</sub>-alkyl-, C<sub>1</sub>-C<sub>4</sub>-halogenoalkyl-, C<sub>1</sub>-C<sub>4</sub>-alkoxy-, or C<sub>1</sub>-C<sub>4</sub>-halogenoalkoxy-substituted groups having the formulas

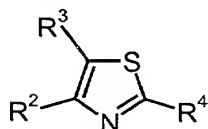


where the arrows mark the points of linkage to the thiazole ring, and n represents 3, 4 or 5,

R<sup>4</sup> represents bromine or chlorine, and

X<sup>-</sup> represents chloride, bromide, iodide, hydrogen sulfate, ½ equivalent of sulfate, sulfate, SbCl<sub>6</sub><sup>-</sup>, methanesulfonate, trifluoromethanesulfonate, or p-toluenesulfonate, comprising

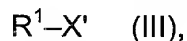
(a) reacting compounds of the formula (II)



(II),

in which R<sup>2</sup>, R<sup>3</sup> and R<sup>4</sup> have the meanings indicated for formula (I-1),

with alkylating reagents of the formula (III)



in which

$R^1$  has the meaning indicated for formula (I-1), and

5  $X'$  represents chlorine, bromine, iodine, sulfoxy,  $\frac{1}{2}$  equivalent of sulfate, sulfate,  $SbCl_6^-$ , methylsulfonyloxy, trifluorosulfonyloxy or toluenesulfonyloxy,

in the presence of a diluent, or

(b) reacting compounds of the formula (II)



10

in which  $R^2$ ,  $R^3$  and  $R^4$  have the meanings indicated for formula (I-1),

with sulfonating reagents of the formula (VII)



15

in which

$R^1$  has the meaning indicated for formula (I-1),

in the presence of a diluent, or

(c) oxidizing compounds of the formula (II)

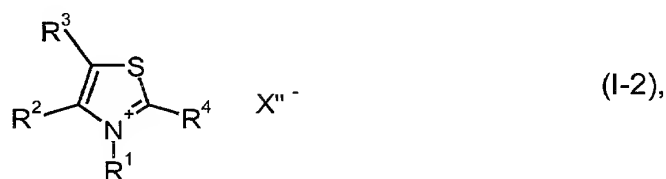


20

in which  $R^2$ ,  $R^3$  and  $R^4$  have the meanings indicated for formula (I-1),

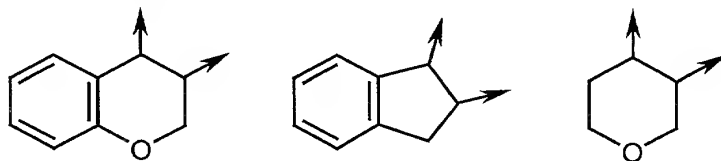
using hydrogen peroxide, peracids, or NaOCl.

7. A process for the preparation of compounds of formula (I-2)



in which

- 5  $R^1$  represents methyl, ethyl, n-propyl, isopropyl, hydroxyl, methylsulfonyl, ethylsulfonyl, phenylsulfonyl, p-methylphenylsulfonyl, or benzyl that is optionally substituted by halogen, nitro,  $C_1$ - $C_4$ -alkyl, or  $C_1$ - $C_4$ -alkoxy,
- 10  $R^2$  represents  $C_1$ - $C_4$ -alkyl, hydroxyl, methylsulfonyl, ethylsulfonyl, phenylsulfonyl, p-methylphenylsulfonyl, phenyl that is optionally substituted by halogen,  $NO_2$ ,  $C_1$ - $C_4$ -alkyl,  $C_1$ - $C_4$ -halogenoalkyl,  $C_1$ - $C_4$ -alkylsulfonyl,  $C_1$ - $C_4$ -alkoxy,  $C_1$ - $C_4$ -halogenoalkoxy,  $C_1$ - $C_4$ -alkoxycarbonyl,  $C_1$ - $C_4$ -halogenoalkoxycarbonyl,  $C_1$ - $C_4$ -alkylcarbonyloxy, or  $C_1$ - $C_4$ -halogenoalkylcarbonyloxy, benzyl that is optionally substituted by halogen, nitro,  $C_1$ - $C_4$ -alkyl, or  $C_1$ - $C_4$ -alkoxy,
- 15 or pyrrolyl, thienyl, naphthyl, or benzothiophenyl, each of which is optionally substituted by halogen,  $C_1$ - $C_4$ -alkyl, or  $C_1$ - $C_4$ -halogenoalkyl,
- $R^3$  represents hydrogen, methyl, or ethyl, or
- 20  $R^2$  and  $R^3$  together represent  $-(CH_2)_n-$  that is optionally substituted by halogen,  $NO_2$ , carboxyl, carbonyl,  $C_1$ - $C_4$ -alkyl,  $C_1$ - $C_4$ -halogenoalkyl,  $C_1$ - $C_4$ -alkoxy, or  $C_1$ - $C_4$ -halogenoalkoxy or the optionally halogen-,  $NO_2$ -,  $C_1$ - $C_4$ -alkyl-,  $C_1$ - $C_4$ -halogenoalkyl-,  $C_1$ - $C_4$ -alkoxy-, or  $C_1$ - $C_4$ -halogenoalkoxy-substituted groups having the formulas



- 25 where the arrows mark the points of linkage to the thiazole ring, and  $n$  represents 3, 4 or 5,

$R^4$  represents bromine or chlorine, and

$X^{''-}$  represents tetrafluoroborate, tetraphenylborate, or hexafluorophosphate,

comprising

- 5 (a) reacting compounds of the formula (II)



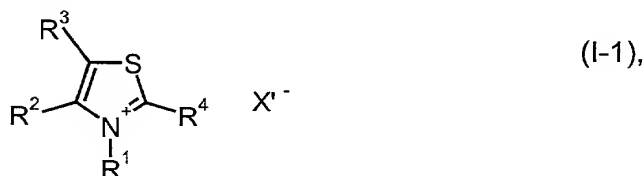
in which  $R^2$ ,  $R^3$  and  $R^4$  have the meanings indicated for formula (I-2),

with alkylating reagents of the formula (IV)

- 10  $(R^1)_3-O^+ X^{''-}$  (IV),

in which  $R^1$  and  $X^{''-}$  have the meanings indicated for formula (I-2),  
in the presence of a diluent, or

- (b) exchanging the anion  $X'^-$  of compounds of the formula (I-1)



- 15 in which

$R^1$ ,  $R^2$ ,  $R^3$ , and  $R^4$  have the meanings indicated for formula (I-2),  
and

$X'$  represents chlorine, bromine, iodine, sulfoxy,  $\frac{1}{2}$  equivalent of sulfate, sulfite,  $SbCl_6^-$ , methylsulfonyloxy, trifluorosulfonyloxy  
20 or toluenesulfonyloxy,

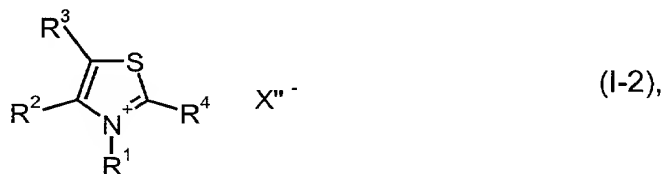
with tetrafluoroboric acid, tetraphenylboric acid, or hexafluorophosphoric acid or an anion exchanger loaded with tetrafluoroboric acid, tetraphenylboric acid, or hexafluorophosphoric acid so that  $X^{''-}$   
25 has the meaning indicated for formula (I-2).

8. A condensation agent comprising a compound according to  
Claim 1.

9. A peptide coupling reagent comprising a condensation agent according to Claim 8.

10. A method comprising synthesizing peptides with a condensation agent wherein the condensation agent is a compound according to Claim 1.

11. A compound of the formula (I-2)



in which

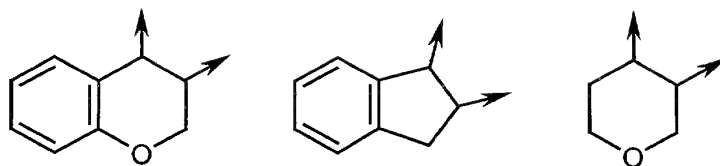
R<sup>1</sup> represents methyl, ethyl, n-propyl, isopropyl, hydroxyl, methylsulfonyl, ethylsulfonyl, phenylsulfonyl, p-methylphenylsulfonyl, or benzyl that is optionally substituted by halogen, nitro, C<sub>1</sub>-C<sub>4</sub>-alkyl, or C<sub>1</sub>-C<sub>4</sub>-alkoxy,

R<sup>2</sup> represents C<sub>1</sub>-C<sub>4</sub>-alkyl, hydroxyl, methylsulfonyl, ethylsulfonyl, phenylsulfonyl, p-methylphenylsulfonyl, phenyl that is optionally substituted by halogen, NO<sub>2</sub>, C<sub>1</sub>-C<sub>4</sub>-alkyl, C<sub>1</sub>-C<sub>4</sub>-halogenoalkyl, C<sub>1</sub>-C<sub>4</sub>-alkylsulfonyl, C<sub>1</sub>-C<sub>4</sub>-alkoxy, C<sub>1</sub>-C<sub>4</sub>-halogenoalkoxy, C<sub>1</sub>-C<sub>4</sub>-alkoxycarbonyl, C<sub>1</sub>-C<sub>4</sub>-halogenoalkoxycarbonyl, C<sub>1</sub>-C<sub>4</sub>-alkylcarbonyloxy, or C<sub>1</sub>-C<sub>4</sub>-halogenoalkylcarbonyloxy, benzyl that is optionally substituted by halogen, nitro, C<sub>1</sub>-C<sub>4</sub>-alkyl, or C<sub>1</sub>-C<sub>4</sub>-alkoxy, or pyrrolyl, thienyl, naphthyl, or benzothiophenyl, each of which is optionally substituted by halogen, C<sub>1</sub>-C<sub>4</sub>-alkyl, or C<sub>1</sub>-C<sub>4</sub>-halogenoalkyl,

R<sup>3</sup> represents hydrogen, methyl, or ethyl, or

R<sup>2</sup> and R<sup>3</sup> together represent -(CH<sub>2</sub>)<sub>n</sub>- that is optionally substituted by halogen, NO<sub>2</sub>, carboxyl, carbonyl, C<sub>1</sub>-C<sub>4</sub>-alkyl, C<sub>1</sub>-C<sub>4</sub>-halogenoalkyl, C<sub>1</sub>-C<sub>4</sub>-alkoxy, or C<sub>1</sub>-C<sub>4</sub>-halogenoalkoxy or the optionally halogen-, NO<sub>2</sub>-, C<sub>1</sub>-C<sub>4</sub>-alkyl-, C<sub>1</sub>-C<sub>4</sub>-halogenoalkyl-, C<sub>1</sub>-C<sub>4</sub>-alkoxy-, or C<sub>1</sub>-C<sub>4</sub>-halogenoalkoxy-substituted groups having the formulas





where the arrows mark the points of linkage to the thiazole ring, and

n represents 3, 4 or 5,

R<sup>4</sup> represents bromine or chlorine, and

- 5 X<sup>m-</sup> represents tetrafluoroborate, tetraphenylborate, or hexafluorophosphate,

with the exception of compounds in which R<sup>4</sup> represents bromine and R<sup>2</sup>

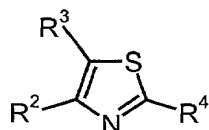
represents CH<sub>3</sub> when R<sup>3</sup> represents hydrogen or CH<sub>3</sub>; in which R<sup>4</sup>

represents chlorine and R<sup>2</sup> represents CH<sub>3</sub> when R<sup>3</sup> represents hydrogen;

- 10 and in which R<sup>4</sup> represents bromine and R<sup>2</sup> represents ethyl when R<sup>3</sup> represents hydrogen.

12. A process for the preparation of compounds of the formula

(II)



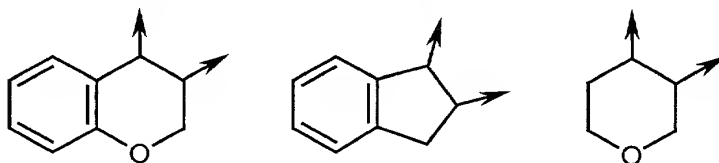
(II),

- 15 in which

R<sup>2</sup> represents C<sub>1</sub>-C<sub>4</sub>-alkyl, hydroxyl, methylsulfonyl, ethylsulfonyl, phenylsulfonyl, p-methylphenylsulfonyl, phenyl that is optionally substituted by halogen, NO<sub>2</sub>, C<sub>1</sub>-C<sub>4</sub>-alkyl, C<sub>1</sub>-C<sub>4</sub>-halogenoalkyl, C<sub>1</sub>-C<sub>4</sub>-alkylsulfonyl, C<sub>1</sub>-C<sub>4</sub>-alkoxy, C<sub>1</sub>-C<sub>4</sub>-halogenoalkoxy, C<sub>1</sub>-C<sub>4</sub>-alkoxycarbonyl, C<sub>1</sub>-C<sub>4</sub>-halogenoalkoxycarbonyl, C<sub>1</sub>-C<sub>4</sub>-alkyl-carbonyloxy, or C<sub>1</sub>-C<sub>4</sub>-halogenoalkylcarbonyloxy, benzyl that is optionally substituted by halogen, nitro, C<sub>1</sub>-C<sub>4</sub>-alkyl, or C<sub>1</sub>-C<sub>4</sub>-alkoxy, or pyrrolyl, thienyl, naphthyl, or benzothiophenyl, each of which is optionally substituted by halogen, C<sub>1</sub>-C<sub>4</sub>-alkyl, or C<sub>1</sub>-C<sub>4</sub>-halogeno-alkyl,

25 R<sup>3</sup> represents hydrogen, methyl, or ethyl, or

$R^2$  and  $R^3$  together represent  $-(CH_2)_n-$  that is optionally substituted by halogen,  $NO_2$ , carboxyl, carbonyl,  $C_1$ - $C_4$ -alkyl,  $C_1$ - $C_4$ -halogenoalkyl,  $C_1$ - $C_4$ -alkoxy, or  $C_1$ - $C_4$ -halogenoalkoxy or the optionally halogen-,  $NO_2$ -,  $C_1$ - $C_4$ -alkyl-,  $C_1$ - $C_4$ -halogenoalkyl-,  $C_1$ - $C_4$ -alkoxy-, or  $C_1$ - $C_4$ -halogenoalkoxy-substituted groups having the formulas

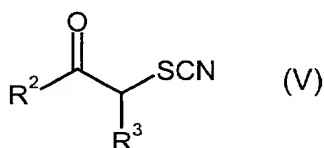


where the arrows mark the points of linkage to the thiazole ring, and  $n$  represents 3, 4 or 5, and

$R^4$  represents bromine or chlorine,

comprising

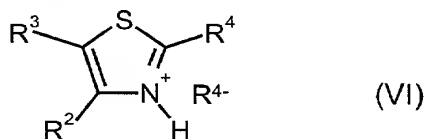
(1) reacting compounds of the formula (V)



in which

$R^2$  and  $R^3$  have one of the meanings indicated for formula (II),

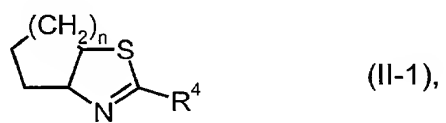
with hydrogen bromide or hydrogen chloride in the presence of a diluent to form a compound of the formula (VI)



in which  $R^2$ ,  $R^3$  and  $R^4$  have one of the meanings indicated for formula (II) and  $R^{4-}$  is bromide or chloride, and

(2) releasing the hydrogen bromide or hydrogen chloride from the compound of the formula (VI).

13. A compound of the formula (II-1)



in which n represents 1 or 2.